

Amendments to the Claims:

Please cancel claims 1 to 8 as presented in the underlying International Application No. PCT/EP2003/009914 without prejudice.

Please add new claims 9 to 16 as indicated in the listing of claims below.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 to 8 (cancelled).

Claim 9 (new): A method for processing a moving workpiece moved using conveyor belt, a processing system for processing the workpiece having a processing tool attached to a hand of a robot, the processing system including a sensor system fixedly connected to the processing tool, the sensor system including at least one sensor, the method comprising the following steps:

moving, during a positioning phase, the hand with the processing tool into a working position, the processing tool in the working position being oriented in a precisely positioned fashion with respect to a reference area of the workpiece moved on the conveyor belt;

maintaining, during a subsequent processing phase, the processing tool oriented with respect to the reference area on the workpiece;

running through a periodically repeating, iterative closed-loop control process during the positioning phase and the processing phase, the closed-loop control process including:

generating an actual measured value of the reference area of the workpiece by the at least one sensor,

comparing the actual measured value with a setpoint measured value generated during a set up phase,

calculating a movement vector of the hand from a difference between the actual measured value and the setpoint measured value using a Jacobi matrix calculated during the set-up phase, and

moving the processing tool using the movement vector.

Claim 10 (new): The method as recited in claim 9 wherein a TCP/IP interface is used for communication between a control system of the robot and an evaluation unit of the sensor system.

Claim 11 (new): The method as recited in claim 9 wherein to position the processing tool with respect to different vehicle body types or with respect to different reference areas of a same vehicle body type, the measured values of different individual sensors of the sensor system are used for closed-loop position control.

Claim 12 (new): The method as recited in claim 9 wherein the workpiece is a vehicle body.

Claim 13 (new): The method as recited in claim 12 wherein the processing tool mounts a roof module in a roof opening in the vehicle body.

Claim 14 (new): The method as recited in claim 12 wherein the processing tool mounts a windshield in a front window opening in the vehicle body.

Claim 15 (new): A processing system for processing a moving workpiece moved using a conveyor belt, the processing system comprising:

- a processing tool attached to a hand of a robot;
- a control system for controlling the robot and the processing tool;
- a sensor system having at least one sensor fixedly connected to the processing tool; and
- an evaluation unit for evaluating measured values of the sensor system;
- the at least one sensor, during a positioning and processing phase, being directed toward a reference area of the moving workpiece,
- the processing tool capable of being coupled in a contact-free fashion to a path movement of the moving workpiece using measured values of the sensor system.

Claim 16 (new): The processing system as recited in claim 15 wherein the at least one sensor is a noncalibrated sensor.

Claim 17 (new): The processing system as recited in claim 16 wherein the at least one sensor is an optical sensor measuring over an area.

Claim 18 (new): The processing system as recited in claim 15 wherein the at least one sensor is an optical sensor measuring over an area.

Claim 19 (new): The processing system as recited in claim 15 wherein the processing system is a vehicle processing system.